This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (currently amended) A method for generating parametric audio output based on interaction of multiple ultrasonic frequencies within air as a nonlinear medium, said method comprising the steps of:

a) generating an electronic signal comprising at least two ultrasonic signals having a difference in value which falls within an audio frequency range;

b) transferring the electronic signal to an electro acoustical polymer film transducer diaphragm which couples directly with the air as part of a single stage energy conversion process;

c) converting the electronic signal at the diaphragm directly to mechanical displacement as a driver member of a parametric speaker; and

d) mechanically emitting the at least two ultrasonic signals from the diaphragm into the air as ultrasonic compression waves which interact within the air to generate the parametric audio output.

2. (original) A method as defined in claim 1, wherein step b) comprises the more specific step of transferring the electronic signal to an electrostatic film transducer.

3. (original) A method as defined in claim 1, wherein step b) comprises the more specific step of transferring the electronic signal to a piezo film diaphragm as the electro acoustical transducer diaphragm.

4. (original) A method as defined in claim 1, wherein step b) comprises the more specific step of transferring the electronic signal to a thermally formed electro mechanical film diaphragm as the electro acoustical transducer diaphragm.

5-6. (canceled)

7. (original) A method as defined in claim 3, wherein step b) comprises the more specific step of transferring the electronic signal to a piezo film diaphragm having a configuration of a rectified sine form.

8. (original) A method as defined in claim 7, wherein step b) comprises the more specific step of transferring the electronic signal to a piezo film diaphragm which is supported by a backplate having a configuration of a rectified sine form.

9-10. (canceled)

11. (original) A method as defined in claim 1, further comprising the step of selecting a transducer diaphragm having a dimension greater than the wavelength of the ultrasonic frequencies at their lowest frequency wavelength value.

12. (original) A method as defined in claim 1, further comprising the step of selecting a transducer diaphragm having a dimension greater than ten times the wavelength of the ultrasonic frequencies at their lowest value.

13-15. (canceled)

16. (original) A method as defined in claim 3, further comprising the step of spacing the transducer diaphragm a distance of a quarter wave of a selected frequency from a supporting backplate.

17. (original) A method as defined in claim 16, further comprising the step of electronically driving film peaks out of phase with film troughs.

18. (canceled)

19. (currently amended) A speaker device for generating parametric audio output based on interaction of multiple ultrasonic frequencies within air as a nonlinear medium, said device comprising:

a) a parametric signal generation system including an ultrasonic signal

source, an audio signal source, and a modulating device coupled to the ultrasonic and audio signal sources for mixing the ultrasonic and audio signals for generating a resultant electronic signal comprising at least two ultrasonic signals having a difference in value which falls within an audio frequency range;

b) an electro acoustical polymer film transducer diaphragm coupled to the parametric signal generation system which also couples directly with the air as part of a single stage energy conversion process; and

c) support structure for positioning and stabilizing the diaphragm to enable mechanical displacement of the diaphragm as a driver member of a parametric speaker.

20. (currently amended) A device as defined in claim 19, wherein the electro acoustical polymer film transducer diaphragm comprises an electrostatic transducer.

21. (currently amended) A device as defined in claim 19, wherein the transducer comprises a piezo film diaphragm as the electro acoustical polymer film transducer diaphragm.

22. (currently amended) A device as defined in claim 19, wherein the transducer comprises a thermally formed electro mechanical film diaphragm as the electro acoustical polymer film transducer diaphragm.

23. (canceled)

24. (currently amended) A method for enhancing parametric audio output based on interaction of multiple ultrasonic frequencies within air as a nonlinear medium, said method comprising the steps of:

a) generating an electronic signal comprising at least two ultrasonic signals having difference in value which falls within an audio frequency range;

b) transmitting the electronic signal to an emitter polymer film transducer diaphragm having an array of arcuate emitter sections formed within the polymer film;

c) electro-mechanically displacing the array of arcuate emitter sections in phase as a driver member of a parametric speaker; and

d) emitting the at least two ultrasonic signals from the emitter polymer film transducer diaphragm into the air as ultrasonic compression waves which interact within the air to generate the parametric audio output.

25. (original) A method as defined in claim 24, wherein step c) comprises the more specific step of displacing the emitter sections in a controlled manner for minimizing saturation of surrounding air at the respective arcuate emitter sections as part of distortion reduction for the parametric speaker.

26. (original) A method as defined in claim 24, wherein step d) comprises the more specific step of emitting the ultrasonic frequencies from the emitter sections in a collimated configuration.

27. (original) A method as defined in claim 24, wherein step b) comprises the more specific step of transmitting the electronic signal to a piezo film diaphragm.

28. (original) A method as defined in claim 27, wherein step b) comprises the more specific step of transmitting the electronic signal to a piezo film diaphragm having an array of circular, arcuate emitter sections.

29. (original) A method as defined in claim 27, wherein step b) comprises the more specific step of transmitting the electronic signal to a piezo film diaphragm having an array of elongate, arcuate emitter sections.

30. (original) A method as defined in claim 27, wherein step b) comprises the more specific step of transmitting the electronic signal to a piezo film diaphragm having an array of elongate, channel-shaped indentations positioned in substantial parallel relationship.

31. (original) A method as defined in claim 27, wherein step b) comprises the more specific step of transmitting the electronic signal to a piezo film diaphragm having a configuration of a rectified sine form.

32-33. (canceled)

34. (currently amended) A method as defined in claim 24, further comprising the step of selecting a emitter polymer film transducer diaphragm having an emitter dimension greater than the wavelength of the ultrasonic frequencies at their lowest value.

35. (currently amended) A method as defined in claim 24, further comprising the step of selecting an emitter polymer film transducer diaphragm having an emitter dimension greater than ten times the wavelength of the ultrasonic frequencies at their lowest value.

36-38. (canceled)

39. (original) A method as defined in claim 24, further comprising the step of spacing the transducer diaphragm a distance of a quarter wave of a selected frequency from a supporting backplate.

40. (original) A method as defined in claim 39, wherein the selected frequency is a carrier frequency.

41-42. (canceled)

43. (original) A method for enhancing parametric audio output based on interaction of multiple ultrasonic frequencies within air as a nonlinear medium, said method comprising the steps of:

a) generating an electronic signal comprising at least two ultrasonic signals having a difference in value which falls within an audio frequency range;

b) concurrently transferring the electronic signal to an array of arcuate

emitter sections formed within a common electro acoustical film transducer diaphragm;

c) displacing the emitter sections in a controlled manner for minimizing saturation of surrounding air at the respective arcuate emitter sections as part of distortion reduction for the parametric speaker;

d) electro-mechanically displacing the array of arcuate emitter sections in phase as a driver member of a parametric speaker;

e) emitting the at least two ultrasonic signals from the diaphragm into the air as ultrasonic compression waves; and

e) interacting the ultrasonic compression waves within the air to generate the parametric audio output.

44. (original) A method as defined in claim 43, wherein step c) comprises the more specific step of limiting the electronic signal based on a weighted relationship between sound pressure level, ultrasonic frequency and size of emitter sections, with a maximum electronic signal limit which prevents continuous distortion of audio output by minimizing saturation of surrounding air at the respective arcuate emitter sections.

45. (original) A method as defined in claim 44, wherein step c) comprises the more specific step of limiting the sound pressure level for all emitter sections to less than 140 db.

46. (original) A speaker device for generating parametric audio output based on interaction of multiple ultrasonic frequencies within air as a nonlinear medium, said device comprising:

a) a parametric signal generation system including an ultrasonic signal source, an audio signal source, and a modulating device coupled to the ultrasonic and audio signal sources for mixing the ultrasonic and audio signals for generating a resultant electronic signal comprising at least two ultrasonic signals having a difference in value which falls within an audio frequency range;

b) an electro acoustical film transducer diaphragm having an array of arcuate emitter sections coupled to the parametric signal generation system; and

c) support structure coupled to the diaphragm and having aligned cavities with the array of arcuate emitter sections for positioning and stabilizing the arcuate emitter sections to enable mechanical displacement of the arcuate emitter sections in phase as a driver member of a parametric speaker.

47. (original) A device as defined in claim 46, wherein the array of arcuate emitter sections are aligned and supported to propagate collimated beams of ultrasonic emissions for enhanced generation of parametric output.

48. (original) A device as defined in claim 46, wherein the transducer comprises a piezo film diaphragm as the electro acoustical transducer diaphragm.

49. (original) A device as defined in claim 46, wherein the arcuate emitter sections have a circular configuration.

50. (withdrawn) A device as defined in claim 49, wherein the piezo film diaphragm includes isotropic properties which develop uniform electro-mechanical response throughout the arcuate emitter sections.

51. (original) A device as defined in claim 46, wherein the arcuate emitter sections have an elongate configuration with an elongate axis.

52-78. (canceled)

79. (currently amended) An emitter for generating audio output from ultrasonic emissions into air, said emitter comprising a flexible piezoelectric polymer membrane having a plurality of arcuate emitter configurations disposed across a surface of the polymer membrane and configured to respond to an electrical signal corresponding to an ultrasonic frequency for generating ultrasonic compression waves into the air.

80-81. (canceled)

82. (currently amended) An emitter as defined in claim 80, wherein the support plate and the polymer membrane are configured to generate a uniform wave front of ultrasonic compression waves.

83. (currently amended) An emitter as defined in claim 82, wherein the arcuate configurations of the polymer membrane are aligned to emit compression waves from the polymer membrane along parallel axes.

84. (canceled).

85. (currently amended) An emitter as defined in claim 79, wherein the piezoelectric polymer membrane includes electrical contacts for receiving a single signal to be applied to all of the emitter configurations of the polymer membrane, thereby minimizing harmonic and phase distortion within the ultrasonic emissions.

86. (currently amended) An emitter as defined in claim 79, wherein the emitter configurations of the polymer membrane are uniform in size, curvature and composition.

87-90. (canceled).

91. (currently amended) A parametric speaker including a support plate and a thin piezoelectric polymer film having an ultrasonic emitter array for emission of ultrasonic compression waves into a nonlinear air medium.

92. (currently amended) A parametric speaker as defined in claim 91, wherein the ultrasonic emitter array comprises an array of arcuate emitter cells disposed across the piezoelectric polymer film.

93. (currently amended) A parametric speaker as defined in claim 92, wherein the piezoelectric polymer film comprises polyvinylidiene di-fluoride.

94-118. (canceled)